REMARKS

This communication is in response to an Advisory Action mailed on July 26, 2006 and follows an interview with Examiner Williams, Examiner Allen, Ian Campbell, Jesse Shaver and the undersigned in which an Office Action mailed on May 11, 2006, was discussed. Mr. Campbell, Mr. Shaver and the undersigned respectfully thank Examiner Williams and Examiner Allen for their time and consideration in conducting the interview.

In the Office Action, claims 1-37 were pending. Claims 1-10, 14-30, 33 and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sumiya (U.S. Patent No. 6,585,723). Furthermore, claims 11-35 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sumiya in view of Yamakaji et al. (U.S. Patent No. 6,637,880). Additionally, claims 12 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sumiya in view of Thorn et al. (U.S. Patent Application No. 2003/0058404) and claims 13, 31 and 32 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sumiya in view of Schmidt et al. (U.S. Patent No. 4,407,008). Of these claims, claim 1, 19 and 24 are independent.

In the interview, Applicant's discussed distinguishing features of subject matter discussed in the present application with respect to Sumiya. In particular, Applicant's disclose an apparatus for measuring characteristics of a substance that includes a lens that oscillates toward and away from the substance (see Applicant's specification page 8, lines 1-7). In contrast, Sumiya is directed to a confocal surgery apparatus for ablating a portion of a cornea. In Sumiya, scanning of an objective lens is performed in an XY direction, which is orthogonal to a direction of light directed at the cornea. In the interview, with regard to independent claims 1 and 24, applicant agreed to further clarify a direction that an actuator oscillates the objective lens. The Advisory Action objected to reference of a Z-axis as a direction of scanning an objective lens.

In view of the Advisory Action, claim 1 has been amended to recite an apparatus for measuring characteristics of a substance. A light source generates light and a first lens collimates the light from the light source in a direction towards the substance along an axis. A second lens receives the collimated light and transmits the light through the first lens and is adapted to focus the light into a focial region in the substance. An actuator is operably coupled to the second lens to oscillate the second lens along the axis. A position sensor is operably coupled to the second lens to sense the position of the second lens. A sensor receives the light reflected from the focal region of the substance and provides a signal indicative thereof as a function of the position of the second lens.

In addition, independent claim 24 has been amended to recite features similar to independent claim 1. As amended, claim 24 recites a method of quantitatively measuring characteristics of a cornea. The method includes generating light and collimating the light with a first lens in a direction toward the cornea along an axis. Light is focused with a second lens into a focal region of the cornea and the second lens is actuated along the axis to focus the light into the cornea at a rate equal to or greater than 10 hertz. A portion of light reflected from the focal region is sensed and a signal indicative of the portion of light reflected is provided.

Support for amendments to claims 1 and 24 can be found with respect to FIG. 1 and description on page 8, lines 1-7. As shown in FIG. 1, light source 14 generates light and first lens 18 collimates the light in a direction towards substance 12. Actuator 22 (as discussed on page 7) actuates second lens 20 toward and away from substance 12 along the direction of the light, and along an axis.

As discussed in the interview, Sumiya scans objective lens 18 in an XY direction, which is orthogonal to a direction of light entering the cornea. While Sumiya describes providing limited movement of lens 18 toward and away from the cornea, there is no teaching or suggestion of oscillating the lens toward and away from the cornea. The movement toward and away from the cornea is simply not an oscillation but a gradual movement. Examiner Allen agreed that this direction of oscillation of the lens was not disclosed by Sumiya. As a result, the features recited in independent claims 1 and 24 are believed to be allowable over Sumiya. Additionally, dependent claims 2-18 and 25-37, which depend from claims 1 and 24, respectively, are also believed to be allowable at least based on their relation to claims 1 and 24.

As further discussed in the interview, features of claim 19 were not taught or suggested by Sumiya since the apparatus recited therein includes "means for scanning a plastic objective lens". While Sumiya utilizes an objective lens, this objective lens is simply not plastic. With regard to the apparatus recited in claim 19, a plastic lens can be used to provide a low mass lens that can allow for rapid scanning along the Z-axis. Furthermore, the plastic lens also provides a low cost lens.

In contrast, Sumiya describes an apparatus for corneal surgery that employs an excimer laser (col. 1, lines 10-15). The excimer laser "has a wavelength in a far ultra-violet region and intensity capable of causing ablation" (col. 2, lines 14-17). It is submitted that the excimer laser of Sumiya would ablate a plastic objective lens and thus would not be suitable as disclosing the means for scanning a plastic objective lens as recited in claim 19. As a result, independent claim 19 is believed to be allowable. Additionally, claims 20-23 are also believed to be allowable at least on their relation to claim 19.

In view of the foregoing, Applicant submits that the present application is in condition for allowance. Applicant respectfully requests allowance of claims 1-37. The Examiner is invited to call the undersigned at (612) 852-0603 with any questions or concerns with regard to this Amendment.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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